

## Extra Practice

## - Combining Functions - 4 operations + Composition

**Guided Practice** 5. Given  $f(x) = 3x^2 + 4x - 5$  and  $g(x) = 2x + 9$ , find  $f(x) + g(x)$ ,  $f(x) - g(x)$ ,  $f(x) \cdot g(x)$ , and  $\left(\frac{f}{g}\right)(x)$ .

Find  $[f \circ g](x)$  and  $[g \circ f](x)$  for each  $f(x)$  and  $g(x)$ .

6.  $f(x) = 2x + 5$

$g(x) = 3 + x$

7.  $f(x) = 2x - 3$

$g(x) = x^2 - 2x$

## EXERCISES

**Practice**

Find  $f(x) + g(x)$ ,  $f(x) - g(x)$ ,  $f(x) \cdot g(x)$ , and  $\left(\frac{f}{g}\right)(x)$  for each  $f(x)$  and  $g(x)$ .

11.  $f(x) = x^2 - 2x$

$g(x) = x + 9$

12.  $f(x) = \frac{x}{x+1}$

$g(x) = x^2 - 1$

13.  $f(x) = \frac{3}{x-7}$

$g(x) = x^2 + 5x$

14. If  $f(x) = x + 3$  and  $g(x) = \frac{2x}{x-5}$ , find  $f(x) + g(x)$ ,  $f(x) - g(x)$ ,  $f(x) \cdot g(x)$ , and  $\left(\frac{f}{g}\right)(x)$ .

Find  $[f \circ g](x)$  and  $[g \circ f](x)$  for each  $f(x)$  and  $g(x)$ .

15.  $f(x) = x^2 - 9$

$g(x) = x + 4$

16.  $f(x) = \frac{1}{2}x - 7$

$g(x) = x + 6$

17.  $f(x) = x - 4$

$g(x) = 3x^2$

18.  $f(x) = x^2 - 1$

$g(x) = 5x^2$

19.  $f(x) = 2x$

$g(x) = x^3 + x^2 + 1$

20.  $f(x) = 1 + x$

$g(x) = x^2 + 5x + 6$

21. What are  $[f \circ g](x)$  and  $[g \circ f](x)$  for  $f(x) = x + 1$  and  $g(x) = \frac{1}{x-1}$ ?

State the domain of  $[f \circ g](x)$  for each  $f(x)$  and  $g(x)$ .

22.  $f(x) = 5x$

$g(x) = x^3$

23.  $f(x) = \frac{1}{x}$

$g(x) = 7 - x$

24.  $f(x) = \sqrt{x-2}$

$g(x) = \frac{1}{4x}$